# FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

**August 11 to 24, 2013 (Weeks 33 & 34)**

## Overall Summary

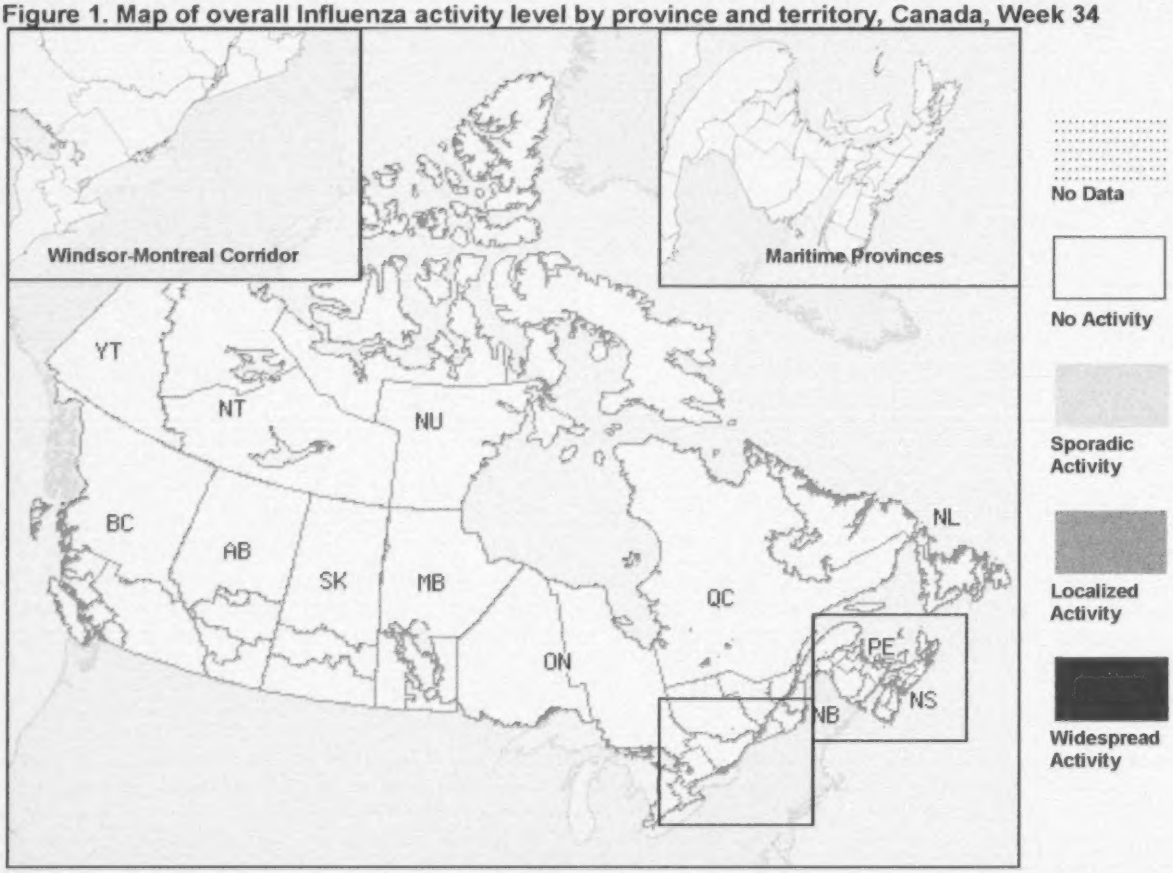
- Influenza activity in Canada remained at inter-seasonal levels during this 2-week period.
- The percentage of laboratory tests positive for all respiratory viruses decreased in weeks 33 and 34, with the number of tests low and similar to previous weeks.
- The ILI consultation rate was stable in recent weeks with a gradual downward trend, although it was above the average range in weeks 33 and 34.

NOTE: This is the final report for the 2012-2013 influenza season. The next FluWatch report will be the first for the 2013-2014 influenza season. Bi-weekly reports will continue until October 11, 2013. Laboratory detections reported through the Respiratory Virus Detection Surveillance System and influenza activity level maps continue to be updated weekly on the FluWatch website.

## Influenza Activity (geographic spread) and Outbreaks

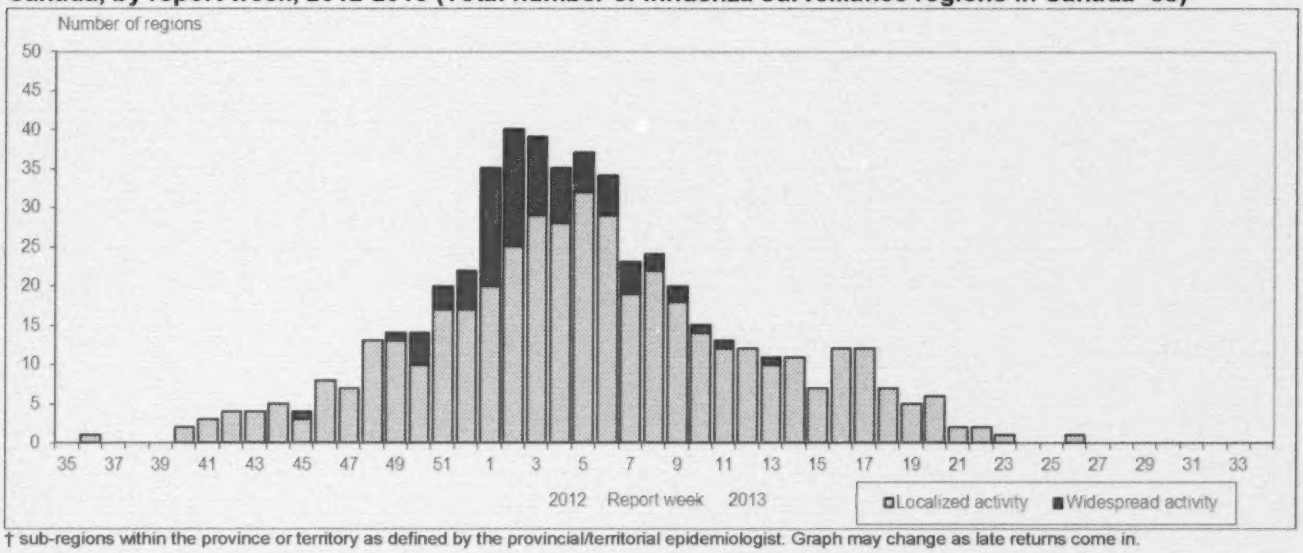
The number of regions reporting influenza activity was at inter-seasonal levels in weeks 33 and 34. In weeks 33 and 34, four regions reported sporadic activity (Figure 1). Localized activity has not been reported since week 26 (Figure 2). No new influenza outbreaks were reported in weeks 33 or 34 (Figure 3).

**Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 34**



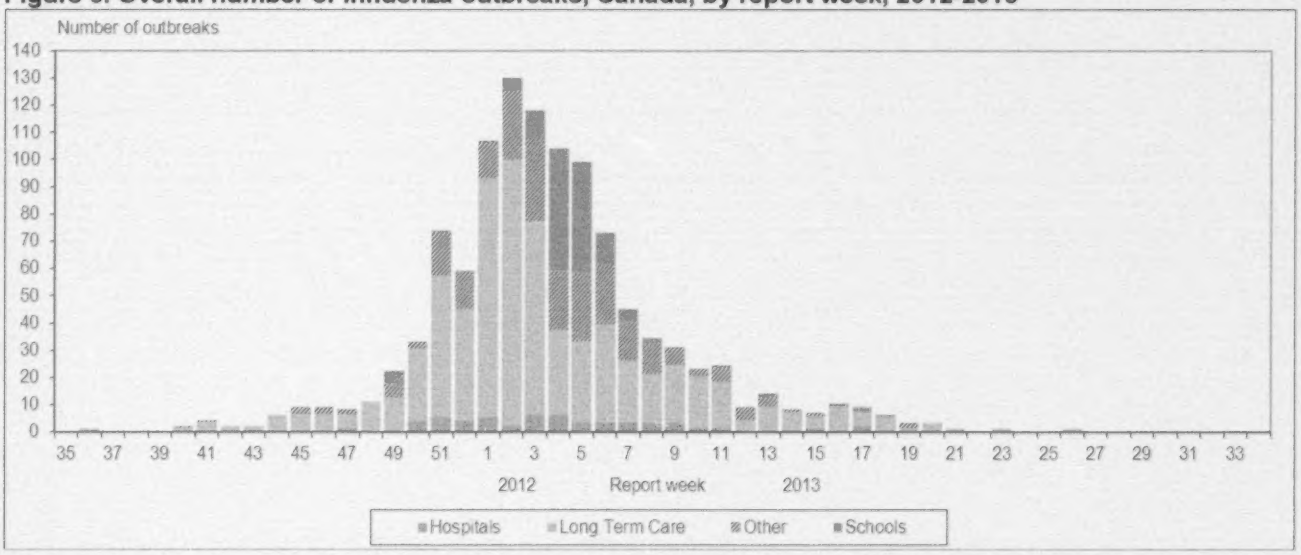

Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

**Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)**




† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

**Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013**




## Influenza and Other Respiratory Virus Detections

The overall percentage of positive influenza tests was low and stable, at 0.6% in week 33 and 0.3% in week 34. Among the nine influenza viruses detected in weeks 33 and 34, seven were influenza A (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 85.1% influenza A [34.8% A(H3), 4.7% A(H1N1)pdm09 and 60.5% A(unsubtyped)] and 14.9% influenza B (Table 1).

Detailed information on age and type/subtype was complete for 26,123 cases (Table 2). The proportion of cases by age group is as follows: 14.8% <5 years; 10.4% between 5-19 years; 16.3% between 20-44 years; 17.0% between 45-64 years of age; 41.5% ≥65 years.

The percentage of positive tests for rhinovirus decreased during this 2-week period from 24.0% in week 32 to to 17.7% in week 34; although the number of positive tests was similar to previous weeks. The percentage of positive tests for parainfluenza declined slightly to 3.4% in week 34. The percentages of positive tests for other respiratory viruses were low in week 34: human metapneumovirus (hMPV) (0%), respiratory syncytial virus (RSV) (0.5%), coronavirus (0.6%) and adenovirus (2.1%) (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

**Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013**

| Reporting provinces | Weekly (August 11 to August 24, 2013) | | | | | | Cumulative (August 26, 2012 to August 24, 2013) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Influenza A | | | | | B | Influenza A | | | | | B |
| | A Total | A(H1) | A(H3) | Pand H1N1 | A (UnS)* | Total | A Total | A(H1) | A(H3) | Pand H1N1 | A (UnS)* | Total |
| BC | 2 | 0 | 2 | 0 | 0 | 0 | 1938 | 0 | 1476 | 222 | 240 | 407 |
| AB | 0 | 0 | 0 | 0 | 0 | 0 | 2363 | 0 | 1771 | 448 | 144 | 843 |
| SK | 1 | 0 | 0 | 0 | 1 | 0 | 844 | 0 | 476 | 74 | 294 | 325 |
| MB | 0 | 0 | 0 | 0 | 0 | 0 | 660 | 0 | 79 | 10 | 571 | 115 |
| ON | 4 | 0 | 0 | 4 | 0 | 1 | 8297 | 0 | 3795 | 389 | 4113 | 954 |
| QC | 0 | 0 | 0 | 0 | 0 | 1 | 9823 | 0 | 546 | 36 | 9241 | 1941 |
| NB | 0 | 0 | 0 | 0 | 0 | 0 | 1872 | 0 | 771 | 75 | 1026 | 102 |
| NS | 0 | 0 | 0 | 0 | 0 | 0 | 388 | 0 | 165 | 8 | 215 | 9 |
| PE | 0 | 0 | 0 | 0 | 0 | 0 | 117 | 0 | 76 | 10 | 31 | 1 |
| NL | 0 | 0 | 0 | 0 | 0 | 0 | 718 | 0 | 240 | 2 | 476 | 20 |
| **Canada** | **7** | **0** | **2** | **4** | **1** | **2** | **27020** | **0** | **9395** | **1274** | **16351** | **4717** |

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

**Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013***

| Age groups | Weekly (August 11 to August 24, 2013) | | | | | Cumulative (Aug. 26, 2012 to Aug. 24, 2013) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Influenza A | | | | B | Influenza A | | | | B |
| | A Total | Pandemic H1N1 | A/H3N2 | A unsubtyped | Total | A Total | Pandemic H1N1 | A/H3N2 | A unsubtyped | Total |
| <5 | 0 | 0 | 0 | 0 | 0 | 3007 | 224 | 838 | 1945 | 853 |
| 5-19 | 0 | 0 | 0 | 0 | 0 | 1632 | 71 | 613 | 948 | 1080 |
| 20-44 | 0 | 0 | 0 | 0 | 1 | 3540 | 358 | 1223 | 1959 | 731 |
| 45-64 | 1 | 0 | 1 | 0 | 0 | 3734 | 330 | 1224 | 2180 | 702 |
| 65+ | 1 | 1 | 0 | 0 | 0 | 10002 | 138 | 3719 | 6145 | 842 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 210 | 29 | 178 | 3 | 2 |
| **Total** | **2** | **1** | **1** | **0** | **1** | **22125** | **1150** | **7795** | **13180** | **4210** |

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

**Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013**

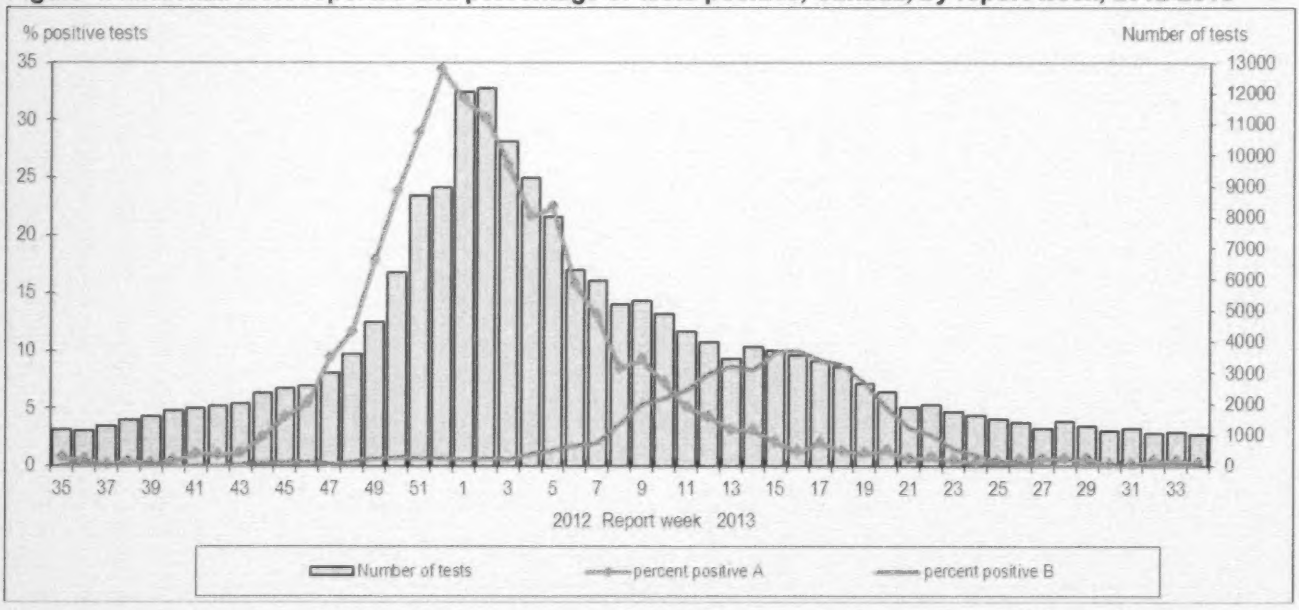
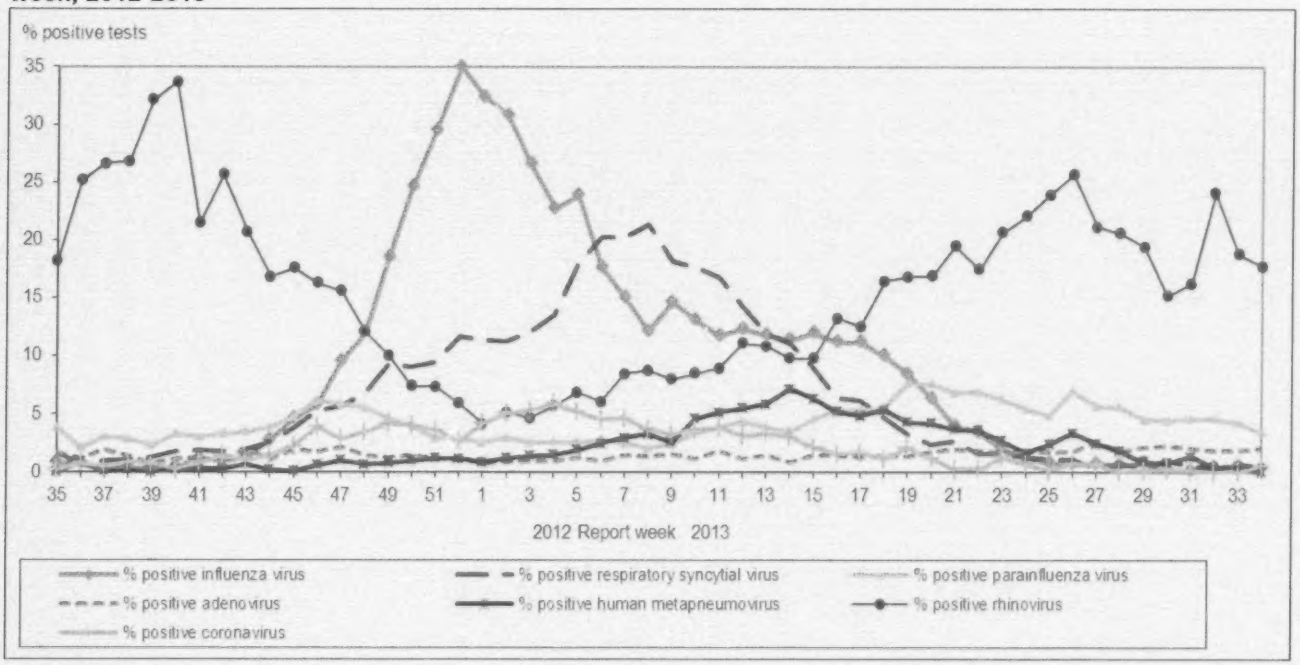


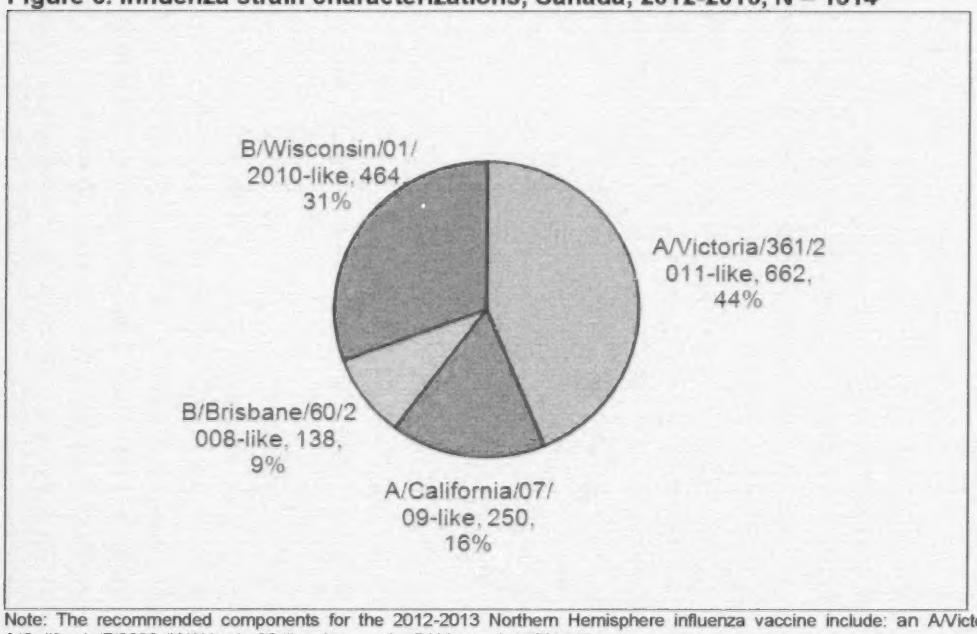
**Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013**




## Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 1514 influenza viruses. The 662 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 250 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 464 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 138 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

**Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 1514**




Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

## Antiviral Resistance

During the 2012-13 season, NML has tested 1508 influenza viruses for resistance to oseltamivir, and 1505 influenza viruses for resistance to zanamivir. Among these, one A(H3N2) virus was resistant to oseltamivir and zanamivir, one A(H1N1)pdm09 virus was resistant to oseltamivir, and three influenza B virus samples were resistant to both oseltamivir and zanamivir. A total of 1344 influenza A viruses were tested for amantadine resistance and all but one A(H3N2) virus were resistant (Table 3).

**Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013**

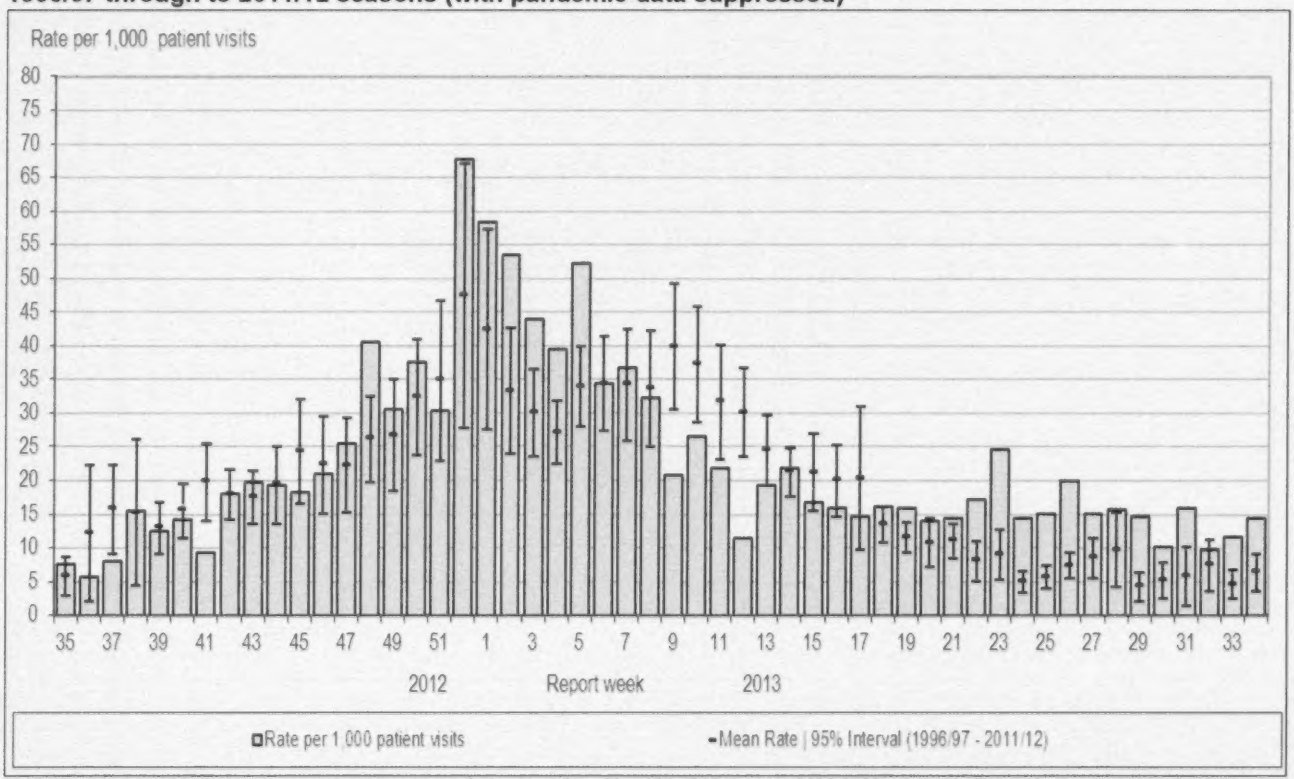
| Virus type and subtype | Oseltamivir | | Zanamivir | | Amantadine | |
|---|---|---|---|---|---|---|
| | # tested | # resistant (%) | # tested | # resistant (%) | # tested | # resistant (%) |
| A (H3N2) | 653 | 1 (0.2%) | 653 | 1 (0.2%) | 1049 | 1048 (99.9%) |
| A (H1N1) | 254 | 1 (0.4%) | 251 | 0 | 295 | 295 (100%) |
| B | 601 | 3 (0.5%) | 601 | 3 (0.5%) | NA* | NA* |
| TOTAL | 1508 | 5 (0.3%) | 1505 | 4 (0.3%) | 1344 | 1344 (99.9%) |

* NA – not applicable

## Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate was similar between weeks 15 and 29, with an average of 16.2 ILI consultations per 1,000 patient visits (range 13.9 to 24.6). The rate continued a gradual downward trend in weeks 30-34, with an average of 12.3/1,000; and was 14.5/1,000 in week 34. The majority of weekly rates observed in weeks 18 to 34 were above the average range (Figure 7). The highest consultation rate was observed in children <5 years of age (41.7/1,000 visits) in week 33 and in children 5-19 years of age in week 34 (30.6/1,000 visits).

**Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)**




Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

## Severe Respiratory Illness Surveillance

**Paediatric Influenza Hospitalizations and Deaths (IMPACT)**

One new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalization was reported in week 34, a child <6 months of age with influenza A. No intensive care unit (ICU) admissions or deaths were reported by the Immunization Monitoring Program Active (IMPACT) network in weeks 33 and 34.

Since the start of the 2012-13 season, a total of 888 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 625 (70.4%) with influenza A [of which 124 (19.8%) were A(H3N2), 31 (5.0 %) were A(H1N1)pdm09 and the remaining 470 were A(unsubtyped); and 263 (29.6%) with influenza B. The distribution of cases by age group is as follows: 168 (18.9%) <6 months of age; 202 (22.7%) age 6-23 months; 254 (28.6 %) age 2-4 years; 189 (21.3%) age 5-9 years; and 75 (8.4%) age 10-16 years. Of the 888 cases, 110 (12.4%) were admitted to the ICU. Of the 92 ICU admissions with available data, 76 (82.6%) cases had at least one underlying condition. One death has been reported to date this season in a child 6-23 months of age with an underlying condition, with influenza B.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

**Adult Influenza Hospitalizations and Deaths (PCIRN)**

Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network concluded for the 2012-13 influenza season on April 30th, 2013. However, the PCIRN-SOS network continues to report limited data on laboratory-confirmed cases of influenza identified through passive surveillance at 15 out of 17 hospital sites. No new hospitalizations, ICU admissions or deaths were reported in weeks 33 and 34.

The cumulative data for the season to date includes data from active surveillance from November 4, 2012 to April 30, 2013 and data from passive surveillance since May 1, 2013. The cumulative number of cases is 1,812: 1,627 (89.8%) with influenza A [of which 313 were A(H3N2), 22 were A(H1N1)pdm09, and 1,292 were A(unsubtyped)]; 139 (7.7%) with influenza B, and the type has not been reported for 46 cases. The age distribution of hospitalizations is as follows: 1,230 (67.9%) were ≥65 years of age, 375 (20.7%) were 45-64 years, 195 (10.8%) were 20-44 years, and 12 (0.7%) were <20 years of age. ICU admission was required for 216 hospitalizations; the majority of which were adults ≥65 years of age (126; 58.3%). A total of 116 deaths have been reported: 26 with influenza A(H3N2), one with A(H1N1)pdm09, 82 with A(unsubtyped), 6 with influenza B, and one untyped. More than 85% of the deaths (99/116) were in adults ≥65 years of age, 14 (12.1%) were adults 45-64 years of age, and 3 (2.6%) were 20-44 years of age.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

**Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)**

In weeks 33 and 34, two new laboratory-confirmed influenza-associated hospitalization was reported from participating provinces and territories*, both cases of influenza A in adults ≥65 years of age. To date this season, 5,077 influenza-associated hospitalizations have been reported, of which 86.3% have been influenza A. Of those subtyped (49.3%), influenza A(H3) was the predominant influenza strain. Age information was available for 5,074 cases, and the age distribution is as follows: 2,665 (52.5%) were ≥65 years of age; 843 (16.6%) were 45-64 years of age; 454 (8.9%) were 20-44 years of age; 41 (0.8%) were 15-19 years of age; 278 (5.5%) were 5-14 years; and 793 (15.6%) were 0-4 years of age. Of the 1,401 cases with available data, there have been 222 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults ≥65 years of age, followed by adults 45-64 years of age (36.0% and 33.8%, respectively). To date, 317 deaths have been reported: 258 adults ≥65 years of age, 37 adults 45-64 years; 13 adults 20-44 years, two children 5-14 years of age, and seven children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

## International Influenza Updates

### Northern Hemisphere

Influenza activity in temperate regions of the northern hemisphere was at inter-seasonal levels in weeks 32 to 33.

*World Health Organization influenza update* ***(#192)***
*Centers for Disease Control and Prevention seasonal influenza report* ***(wk33)***
*EuroFlu weekly electronic bulletin* ***(wk32)***

## Tropical Regions

**Asia & Africa**: Influenza activity remained low in most countries in tropical Asia. Cambodia, Viet Nam and Thailand reported decreasing circulation of influenza A. Most countries in central Africa reported low or decreasing influenza activity.

**Carribean, Central America & tropical South America:** Influenza activity in Caribbean and Central America was decreasing, with influenza A(H3N2) most commonly detected, except in Costa Rica where A(H1N1)pdm09 was reported. In tropical South America, influenza activity was decreasing in Bolivia, Brazil, Colombia and Venezuela. The exception was Peru, where a sharp increase in A(H1N1)pdm09 was reported in mid-July.
*World Health Organization influenza update* ***(#192)***
*PAHO Influenza Situation Report* ***(wk32)***

## Southern Hemisphere

Influenza activity continued to decline in most countries in South America as well as in South Africa. Activity in Oceania continued to increase gradually during weeks 33-34 with a predominance of A(H3N2).

**South America – Southern Cone:** Influenza and RSV circulation declined in several countries in temperate South America, although RSV continued to be the predominant respiratory virus in the region. Influenza detections peaked at the end of June, with a predominance of A(H1N1)pdm09 in all countries except Paraguay, where A(H3N2) was predominant. In Argentina, the number of ILI reports is declining and within the expected range in week 32. Laboratory detections seem to have peaked in week 27, with A(H1N1)pdm09 predominant this season. In Chile, the ILI activity rate continued to decline in week 32. RSV continued to be the dominant respiratory virus, but influenza detections have also been declining since week 28. In Paraguay, ILI activity decreased; influenza A(H3N2) and RSV detections have been declining in weeks 28-32. In Brazil, influenza detections have been declining since a peak in week 24, with A(H1N1)pdm09 and influenza B co-circulating.

**South Africa:** Circulation of A(H1N1)pdm09 was reported from April to July 2013, with a peak in laboratory detections in week 23. In weeks 31-32, increases in the percentage of specimens positive for influenza were observed among ILI and SARI cases, with a predominance of A(H3N2) and influenza B.
*South Africa Influenza surveillance report* ***(wk32)***

**Australia & New Zealand:** Compared to recent years, the start of the 2013 influenza season has been delayed in Australia and New Zealand. In New Zealand, consultation rates for ILI remained below the baseline level, and below the level of the previous two seasons. Laboratory detections of influenza increased in weeks 29-34. Among the 791 influenza viruses identified between weeks 1 and 34, 53.0% were influenza B. Among the 262 subtyped influenza A viruses, 72.9% were A(H3N2). In Australia, no new surveillance report has been published since August 2. However WHO FluNet shows gradually increasing numbers of influenza detections in Australia in weeks 29-34, with a predominance of A(H3N2).
*New Zealand Public Health Surveillance* ***(wk34)***
*Australia Influenza Report* ***(#04)***

*World Health Organization influenza update*
*PAHO Influenza Situation Report*
*WHO FluNet*

## Emerging Respiratory Pathogens

**Human Avian Influenza**
Influenza A(H7N9): No new cases of human infection with avian influenza A(H7N9) have been reported by the World Health Organization (WHO) since 11 August 2013.
*PHAC – Avian influenza A(H7N9)*
*WHO – Avian Influenza A(H7N9)*

**Human Swine Influenza**
Influenza A(H3N2)v: No new cases of human infection with variant influenza A(H3N2)v have been reported in weeks 33 or 34.
*Centers for Disease Control and Prevention Influenza A(H3N2) Variant Virus*

**Middle East Respiratory Syndrome Coronavirus (MERS-CoV)**
Since 16 August 2013, WHO has reported ten additional cases of MERS-CoV infection: eight cases, including two deaths, in Saudi Arabia; and two cases in Qatar. Nine of the ten cases have underlying medical conditions. The case without any underlying medical conditions was a contact of a confirmed case and was asymptomatic. As of August 29, 2013, 104 laboratory-confirmed cases of human infection with MERS-CoV have been reported, including 49 deaths. Most patients are male (61%; 61 of 100 cases) and range in age from 14 months to 94 years (median 51 years, n=97).
*PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)*
*WHO – Coronavirus infections*

**FluWatch reports include data and information from the following sources:** laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

**ILI definition for the 2012-2013 season**

**ILI in the general population:** Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

**Definitions of ILI/Influenza outbreaks for the 2012-2013 season**

**Schools:** Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

**Hospitals and residential institutions:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

**Workplace:** Greater than 10% absenteeism on any day which is most likely due to ILI.

**Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

**Influenza Activity Levels Definition for the 2012-2013 season**

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

*We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.*

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.